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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/426,579	10/25/1999	RICHARD G. BEDNAR	EN999023	2074

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EXAMINER	
CHUNG, DANIEL J	
ART UNIT	**PAPER NUMBER**
2672	3

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/426,579	BEDNAR ET AL.
	Examiner	Art Unit
	Daniel J Chung	2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,11,12 and 14-21* is/are rejected.

7)☒ Claim(s) *8-10 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

Receipt is acknowledged of Applicant's Information Disclosure Statement of 10-25-1999, which has been placed in the application file and considered by the Examiner.

Drawings

The drawings are objected to by the Draftperson as shown in the enclosed form PTO-948. Corrected drawings are required to be submitted.

Specification

Please review the application and correct all informalities.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 14-19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Frei (5,159,201).

Regarding claim 1, Frei discloses that the claimed feature of a method for filling a polygon with a minimum number of rectangles, comprising the steps of: bordering ['decomposing polygon into rectangles'] polygon, including: selecting a starting border width (See col 6 line 25-27, col 6 line 62-64); and merging ["union shapes"; 43] border segments where possible (See col 3 line 23-31); and then orthogonally filling [44,316]. (See Abstract, Fig 1, Fig 2, Fig 7A-B)

Regarding claim 2, Frei discloses that the claimed feature of a method for filling an original polygon envelope with a minimum number of stripes, comprising the steps of: creating [36,42,64,68] a border polygon ['decomposing step']; generating [44,316] orthogonal fill stripes ["rectangles"]; and processing [318] uncovered areas [i.e. "slivers"]. (See Abstract, Fig 1, Fig 2, Fig 7A-B)

Regarding claim 3, Frei discloses that receiving input parameters [30,32,300], input parameters including parameters defining a minimum stripe width, a maximum stripe width, and a merge adjacent borders flag. (See Fig 1, Fig 7A-B, col 3 line 23-31, col 6 line 25-27, col 6 line 62-64, col 8 line 40-43)

Regarding claim 4, Frei discloses that input parameters further including stripe overlap amount. (See Fig 1, Fig 7A-B, col 3 line 18-35)

Regarding claims 14-19 and 21, claims 14-19 and 21 are similar in scope to the claims 1-3, and thus the rejections to claims 1-3 hereinabove are also applicable to claims 14-19 and 21.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frei in view of Goyins et al (5,461,703).

Regarding claim 5, Frei fails to teach that using of wire with ends size delta. However, such limitation is shown in the teaching of Goyins et al ["centerline"; 152] in an analogous art [filling polygon]. (See Fig 12, Fig 13, Fig 15-16, col 8 line 16-52) It would have been obvious to one skilled in the art to incorporate the teaching of Goyins et al into the teaching of Frei, in order to provide corrected values that more accurately locate points for filling process, as such improvement is also advantageously desirable in the teaching of Frei for properly decomposing polygons with effective manner.

Claims 6-7,11-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frei in view of Dyches et al (5,461,703).

Regarding claim 6, Frei fails to teach that calculating a maximum current polygon border width parameter for a current polygon; responsive to maximum current polygon border width parameter, calculating a border width parameter for a current border; creating a border polygon with a width equal to border width parameter, creating a least encompassing rectangle for new fill polygon; responsive to least encompassing rectangle being contained entirely within original polygon envelope, ending step of creating a border polygon and passing any uncovered area within new fill polygon to generating step; otherwise, returning to step for calculating width to process new fill polygon as current polygon. However, such limitations are shown in the teaching of Dyches et al. [i.e. "the polygon is decomposed into a rectangle [border] and a smaller polygon [uncovered area]", "maximize rectangle within bounds of polygon"; 118, "fill rectangle"; 120] (See Abstract line 11-17, Fig 8, Fig 11a-b, Fig 12, col 2 line 38-51, col 6 line 64-col 7 line 29) It would have been obvious to one skilled in the art to incorporate the teaching of Dyches et al into the teaching of Frei, in order to minimize the number of rectangles within polygon, thereby reducing the time necessary to fill the polygon (See col 2 line 46-51 in Dyches), as such improvement is also advantageously desirable in the teaching of Frei for optimizing polygon filling with reducing the processing of time.

Regarding claim 7, refer to the discussion for claim 6 hereinabove, Frei discloses that calculating a maximum current polygon border width further comprising the steps of: adjusting maximum stripe width input parameter to a new upper limit which reflects characteristics of current polygon as well as any previous border polygons. (See Fig 1, Fig 7A-B, Fig 13A-C)

Regarding claim 11, refer to the discussion for claim 6 hereinabove, Frei discloses that analyzing areas to be filled to determine optimal stripe direction and iteratively generating fill stripes in optimal stripe direction to fill areas to be filled. (See fig 13A-C)

Regarding claim 12, refer to the discussion for claim 6 hereinabove discloses that locating all uncovered polygon areas by subtracting the union of all existing fill shapes from original polygon envelope; and iteratively process each uncovered polygon area, selectively bordering and orthogonally filling those uncovered polygon areas which are exterior polygons, and filling with a single rectangle uncovered polygon area which are interior polygons. (See Fig 1-2, Fig 7A-B, Also See Fig 8, Fig 11-12 in Dyches et al)

Regarding claim 20, claims 20 is similar in scope to the claims 2 and 6, and thus the rejections to claims 2 and 6 hereinabove are also applicable to claims 20.

Allowable Subject Matter

Claims 8-10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The present invention is directed to a method for filling a polygon with a minimum number of rectangles. The above claims identifies the uniquely distinct features "calculating the length of each side of current polygon; deriving a smallest side length parameter equal to the larger of a first factor times minimum stripe width or the length of the shortest side obtained from step for calculating length; setting smallest side length parameter from deriving step to a reduced amount by a second factor; if current polygon is an inner border and smallest side length parameter is less than the previous border width, setting smallest side length equal to previous border width; if smallest side length parameter is greater than maximum stripe width parameter, setting smallest side length parameter equal to maximum strip width parameter; and returning smallest side length parameter for processing as maximum current polygon border width parameter". The closest prior art, Frei (US 5,159,201) and Dyches et al (US 5,644,691) discloses a similar system, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc
March 13, 2003

JEFFERY BRIER
PRIMARY EXAMINER